DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

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Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 69.28

WELDING INSPECTION REPORT

Resident Engineer: Pursell, Gary
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-001258
Date Inspected: 21-Jan-2008

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island

OSM Arrival Time: 630
OSM Departure Time: 1530
Location: Shanghai, China

CWI Name: ZPMC-Ye Yong Jun and Woo Ming Hai

CWI Present:	☑ Yes	☐ No					
Inspected CWI report:	☑ Yes	☐ No	☐ N/A	**Rod Oven in Use:**	☑ Yes	☐ No	☐ N/A
Electrode to specification:	☑ Yes	☐ No	☐ N/A	**Weld Procedures Followed:**	☑ Yes	☐ No	☐ N/A
Qualified Welders:	☑ Yes	☐ No	☐ N/A	**Verified Joint Fit-up:**	☑ Yes	☐ No	☐ N/A
Approved Drawings:	☑ Yes	☐ No	☐ N/A	**Approved WPS:**	☑ Yes	☐ No	☐ N/A
				Delayed / Cancelled:	☐ Yes	☑ No	☐ N/A

Bridge No: 34-0006
Component: New Tower Mock-up, Bay 2, and Bay 7 Obse

Summary of Items Observed:

On this date, the Caltrans Quality Assurance (QA) representative, John P. Tracy, conducted assessments while on site at Zhenhua Port Machinery Company (ZPMC) for Caltrans Project 04-0120F4-SAS. The following is the detailed review of the following observations:

Bay 1:
Gas Metal Arc Weld (GMAW) / Submerged Arc Weld (SAW) gantry welder was not active.

Bay 2:
77m mock-up section had ongoing thermal welding operation ongoing for Plate to Diaphragm attachment welds via Shielded Metal Arc Weld (SMAW) process and Plate to Plate attachment welds via Flux Core Arc Weld (FCAW) process.

The 89m built-up channels (shear link housings) were inactive. The corner stiffener section for this assembly were tack welded on an off shift and appear to be awaiting weld completion. The four panels have been completed and are laying on the elevated platform in the shear link area.

The 89m corner braces for the mock-up section were tack welded but inactive. Multiple pieces to the assembly are laying on the elevated platform in the shear link area and appear to be awaiting weld completion.

114m upper and lower mock-up sections completed machining operations but were thermally inactive with only mechanical clean-up and grinding operation being performed. The upper and lower sections were relocated to the

front of the bay, thus faying the two machined surfaces. There were two separate issue noted in the mock-up sections' current position:
1) Misalignment at the ID and OD surfaces. The top and bottom of the fit-up was between 10 to 17mm off of flush and, 2) there was a gap between the to surfaces that was between 2 to 7mm at the top and bottom of the structure.
It is unclear, at the present time, whether the sections have exceeded their dimensional tolerances or if the fit-up has been observed at an early stage. Further action on this issue is pending.

MUSB-MA26-1 and -2 shear links were thermally inactive with only mechanical clean-up and grinding operation being performed.

89m MUSB-MA29 Cross Brace has had heat straightening operations performed plus flange to inner, and outer, stiffener attachment welds have been tack welded and have root passes already in place, however the component remains incomplete and inactive.

Oxygen(oxy) / Fuel Cutting Station was actively cutting 75x3000x8000(mm) American Society of Testing Materials (ASTM) A709M-HPS-485WT2-Z for production diaphragm assemblies and temporary supports for the 114m mock-up sections.

New Tower Mock-up Bay:
89m mock-up section had ongoing thermal welding operation ongoing for Plate to Diaphragm attachment welds via Shielded Metal Arc Weld (SMAW) process and Plate to Plate attachment welds via Flux Core Arc Weld (FCAW) process. ZPMC Certified Welding Inspector (CWI), Ye Yong Jun, and two ZPMC Quality Control (QC) inspectors were present during the above said operations.

Oxygen(oxy) / Fuel Cutting Station was actively cutting 75x3000x8000(mm) American Society of Testing Materials (ASTM) A709M-HPS-485WT2-Z for production diaphragm assemblies and temporary supports for the 114m mock-up sections.

Bay 3:
Thermal operation were ongoing with multiple side plates, in various stages of completion, being worked simultaneously. ZPMC CWI, Woo Ming Kat, was the lead CWI for this area and Seismic Performance Critical Member (SPCM) material fabrications.

Bay 7:
Thermal operation were ongoing with multiple floor beams, diaphragm and stiffeners being oxy/fuel preheated, tack welded and fabricated while in various stages of completion. The Caltrans representative noted several floor beams throughout the bay had red magnetic particle powder on welds.

NOTE No Magnetic Particle inspection was observed, however the amounts dry magnetic particle powder that is being left on the plates is very heavy and is covering the lower side of the welds heat affected zone. The Caltrans representative pointed this observation out to ABF representative, Mr. Dave LaRue. The Caltrans representative asked Mr. LaRue for some clarification on the issue and asked if this was normal powder amounts for ZPMC inspectors. He stated that he would look into the matter and return the answer after some inquiry.

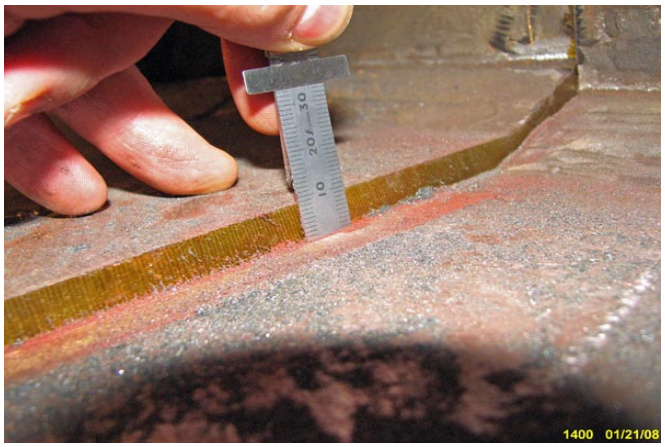
Further action on this item is pending.

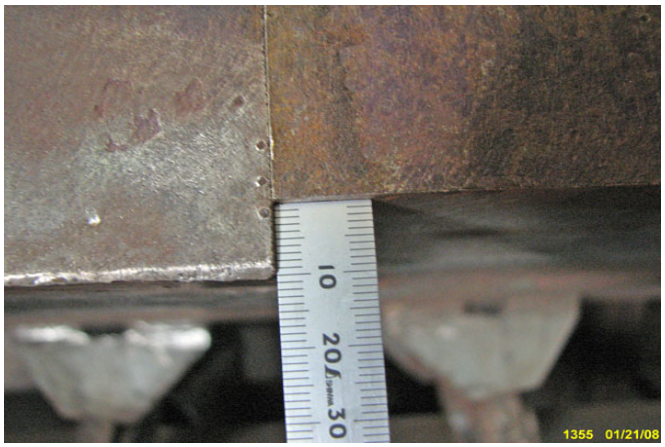
Consumable Welding Electrode Storage Rooms - ***NOTE*** Area 1 is being defined as the storage/issue room which is closest to the existing mock-up bays currently in use. Area 2 is being defined as the storage/issue room which is closest to the new mock-up bays.
Area 1 - The Storage temperatures and issuance log sheets for consumable electrodes and flux appeared to be in conformance within the criteria set forth within the contractual documents.
Area 2 - The Caltrans representative observed the issuance room, which was outside of the new tower mock-up bay again today with American Bridge Fabricator (ABF) representative, Mr. Dave LaRue. Again, there was no obvious evidence that this room, while being adequately equipped for the SFOBB project requirements, was being utilized as a storage/issuance point for tower mock-up operations. Further action on this issue is pending.

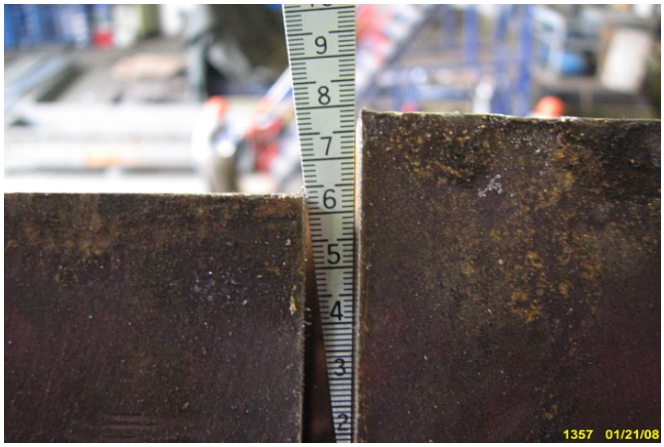
Included below are digital pictures that support the observations recorded within this report.

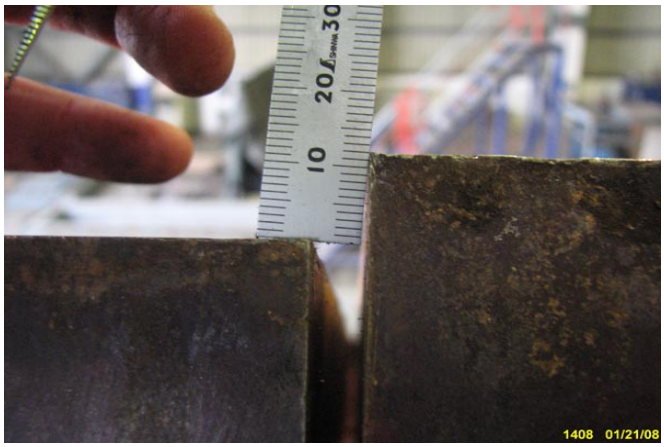
WELDING INSPECTION REPORT

(Continued Page 4 of 6)









Summary of Conversations:

At the completion of the above stated operations, the ZPMC Certified Welding Inspectors, Ye Yong Jun and Woo Ming Kat, reported that the parameters followed and their noted results were found to be in accordance with the criteria set forth within the contractual documents.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or

remedial efforts please contact Mazen Wahbeh, (818) 292-0659, who represents the Office of Structural Materials for your project.

Inspected By:	Tracy,John	Quality Assurance Inspector
Reviewed By:	Cuellar,Robert	QA Reviewer